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Millimeter-wave receiver based on a folded dipole antenna and Schottky diode for maximum power transfer

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Abstract

In this article a millimeter-wave (mm-wave) receiver based on a folded dipole antenna, zero bias Schottky diode and silicon (Si) lens is presented. The antenna is designed in such a way that its input impedance is equal to the conjugate of the input impedance of the diode, so conjugate matching between antenna and diode is obtained and maximum power transfer between them is achieved. A first prototype working at 75GHz with 10mm diameter Si lens has been manufactured and measured.